Session 7 Summary
Advanced Technologies I

1. Z. Fan*-Described new mJ level, ~20 psec, kHz laser source consisting of a diode fiber end-pumped , SESAM modelocked, NdVan oscillator, regenerative amplifier, and LBO doubling crystal built by new GK Laser Technlogy ltd. in Beijing China.
2. Z. LI*- weak signal detection was enhanced by a factor of 6 to 7 by using one 1.56 m receive telescope and one 60 cm telescope which also transmitted about 1 W of laser power to the target. Possible application to difficult targets and debris tracking.
3. T. Murphy – Described an alternative method for detecting aircraft and avoiding accidental illumination by monitoring A/C transponder signals,. Advantages include : $1/r^2$ signal falloff for longer A/C ranges (>100km); no radar emissions that can interfere with local experiments (e.g. VLBI); sees through clouds and not fooled by birds etc; low cost; and FAA approval precedents. It is passive and decodes transponder signal to read ID, altitude, data. Phased array antenna determines if source is near boresight.
4. I. Blinov - Described plans to upgrade stations at Irkutsk and Mendeleevo to ensure accurate transfer of time in support of time standard comparison, GLONASS time scale, atomic time experiments, etc.

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Advanced Technologies I (cont.)

5. M. Sadovnikov - The new generation SLR station is designed to: perform geodetic, time transfer and GLONASS ephemeris and time support accuracy increase tasks; and achieve submillimeter accuracy range measurements. The single- photoelectron receiving mode and differential method of laser ranging and normal point formation are used in the station. The hybrid photodetector which has the minimal value of diffusion bias is selected as the single-electron photodetector of the SLR station.
6. P. Villoresi –Described Italian efforts in demonstrating a Laser Quantum Communications System which use multistate Qbits instead of two state bits (0 or 1)
7. A. Kloth – Described SCOPE (SLR Control and Operations Software) stack which appears to cover all functions of a modern SLR station, including kHz stations.